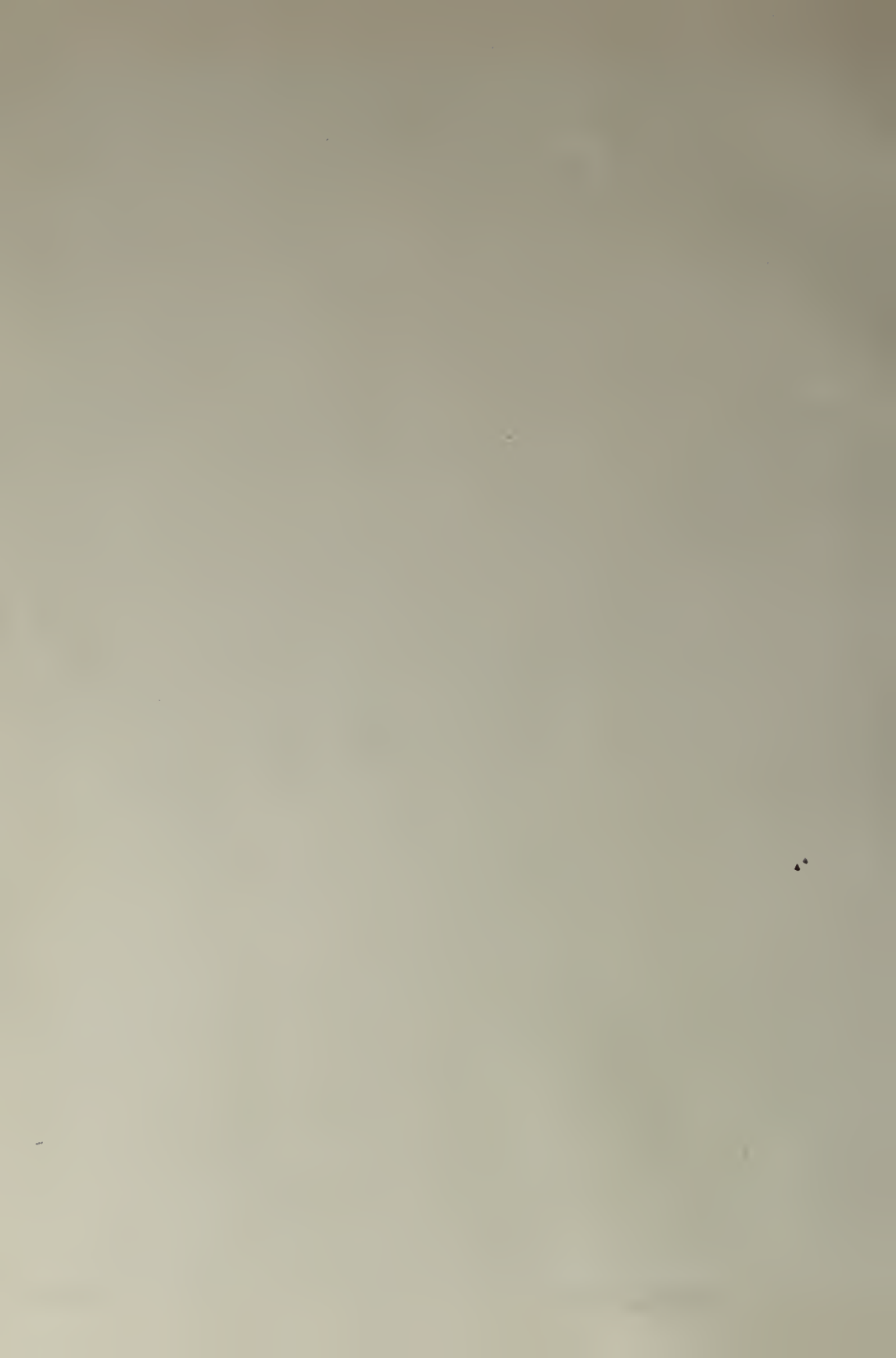


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* Therapeutic Nutrition, Committee on Therapeutic Nutrition, Food and Nutrition Board, Publication 234, National Research Council.

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COVER — Stan Giannelli, '52, leaves with the father of twins for an off-island house call in Newfoundland. For the full article, see page 10.

Some Myths about Medical School Admissions*

DANIEL H. FUNKENSTEIN, M.D.

Clinical Associate in Psychiatry

In a quotation applicable to pre-medical education, John Stuart Mill¹ wrote, "Men are men before they are lawyers or physicians or manufacturers, and if you make them capable and sensible men, they will make themselves capable and sensible lawyers or physicians." This is a very succinct statement of the selection ideal of the Harvard Medical School. Although the Admissions Committee is looking for the mature, broadly educated man of integrity, the myth that certain specific criteria guide the selection process persists. These are some of the myths concerning your son's entrance into medical school: All that is required is to reside in certain states, go to the right college, major in science and take as many science courses as possible. A minimum should consist of organic chemistry, inorganic chemistry, qualitative analysis, quantitative analysis, physical chemistry, biology, botany, embryology, histology, comparative anatomy and physics. He should make "A's" in all of his subjects. In his spare time, he should become captain of the football team, president of the student council, work in the summer, and cultivate certain college professors whose excellent recommendations are essential. When he is interviewed by the medical school he must be sure not to reveal himself but to give the committee

member just what he wants to hear, thus making an excellent impression on an unfriendly interviewer. His score on the medical college admission test should place him in the 99th percentile of all medical students. If he can negotiate all of these hurdles you can be sure that he'll be admitted. Anything less than this will result in his rejection because there are so few places in medical schools available in proportion to the great number of applicants.

This is the stereotyped information quickly picked up by the young student who arrives at college determined to be a doctor. Seeking council from his colleagues, pre-medical advisers, doctors and friends, he becomes more and more anxiety-ridden as he contemplates the almost superhuman task before him of securing entrance to medical school. With great trepidation he plans his college career toward fulfilling all of these requirements and enters what the Harvard *Crimson* calls the "rat race." Quoting the *Crimson*: "No question about it, pre-meds are a special breed of Harvard man. They are the people . . . who talk ceaselessly about the last Chem 20 exam at breakfast, and who gather in little worried groups to discuss chances of acceptance at medical school. . . . Wild rumors sweep through the ranks of pre-meds, leaving pale faces and young neuroses in their wake." Thus the embryo doctor is seen by his college contemporaries.

Planning one's college career to meet these theoretical requirements exacts a price, and a high one at that. This price is paid in missing the golden opportunity of acquiring a broad education and of tak-

* Speech delivered at Alumni Day Symposia, May 28, 1954.

¹ Quoted by Griswold, A. W.: *Essays on Education*, Yale University Press, New Haven, Conn., 1954.

ing advantage of these intangibles of college life which contribute so much to personality growth and maturity. When such a course is embarked on, it means living and planning one's college career on the basis of what one thinks others desire, rather than according to one's own inner needs and desires. It means a feeling of intense competition with one's colleagues. It means an absence of that cooperativeness and good feeling between students, and between students and faculty members which facilitates the learning process. The luxury of making mistakes and profiting from them can no longer be afforded. It means constant strain and a feeling of being driven. Isolation from the main stream of college life often follows. Such a course means a failure to perfect skills in dealing with people through a lack of practice; a failure to relate knowledge to reality—only possible when education is pursued more leisurely and with less intensity and anxiety over grades. It fails to provide time for contemplation and for the working through and solving of so many of the important problems of late adolescence. It means a failure to acquire a broad grasp of knowledge, traditions and culture which contribute so much to making a person a more effective human being.

For the college, this type of pre-medical "training" poses many problems. If there are a sizeable number of such students, then the entire complexion of the college must be altered to accommodate them. Those responsible for the planning of general education programs then feel that they are not free to offer the type of educational program they think best for the development of a man.

It seems inconceivable that this state of affairs when held up to the cold light of day would be defended by anyone as desirable, least of all a medical school, yet the blame for this situation is largely laid on admissions committees. When medical schools state, as they have in recent publications, their opposition to such educational practices, and their belief in a broad liberal

education as the best preparation for medical school, they are met with a very resistant attitude.

As one who has had the opportunity of seeing at first hand how an Admissions Committee functions, I would like to submit the proposition that as far as the Harvard Medical School is concerned, these beliefs of the pre-medical students in regard to admission practices are without foundation in fact, and are in reality myths. Merely stating this is not enough; let us examine some of these myths about admission in the light of actual admission practices.

1. *The myth of geographical distribution:*

In each of the last five entering Harvard Medical classes, the students represented an average of 28 states. During the past four years, 42 different states were represented in the student body. Actually the more populous states had a higher number of students but the number was not excessive in relation to the population. This school has no geographical quota and no matter where an applicant may live, he will not be denied admission because only a certain number may be taken from the state in which he resides.

2. *The myth that it is important for the student to go to certain colleges:*

An average of 47.6 different colleges were represented in each of the last five entering classes. From 1940 to 1950, 219 different institutions were represented with 92 different institutions sending five or more students during the period 1931-1950. These figures speak for themselves.

3. *The myth that a student must major in science:*

Nine point three (9.3) per cent of the science majors and 12.2 per cent of the non-science majors who applied for places in the class that will enter in the fall were admitted. Unfortunately the great majority of applicants had majored in sciences. In the light of the over-all qualifications of the men, the committee, whatever may have been its viewpoint, was forced to select a majority of the class from this group.

This preponderance of science majors was the result in some instances of a real interest in science or a desire to come closer to medicine by taking subjects such as embryology and histology, but in many cases it reflected the advice given them by their pre-medical advisors and their own fears that such a course was necessary. It would have been grossly unfair to have rejected a large number of men because of their overspecialization in science when the causes of this condition are understood. However, it is only fair to state that some men who piled science course on science course at the expense of a broad education were looked at askance by the committee. The student with a real interest and talent in the sciences should, if he so desires, major in this field but leave sufficient room and time in his college curriculum to explore other fields of knowledge as important in the development of an able man. Certainly these figures show that majoring in science gives the applicant no advantage before the committee.

4. *The myth that the student must make a high score on the Medical College Admission Test:*

The Medical College Admission Test consists of four equally weighted parts. The average entrance score of the Harvard Medical students entering next year was at the 84th percentile of all medical school applicants. However, it is only fair to point out that 69, or 60 per cent, of the students in 1954, and 90, or 79 per cent, of the students in 1953 were below the 69th percentile on at least one part of the test.

This test serves several useful purposes. Since almost all applicants to medical schools in the United States take this test, it enables each student to be compared with all other students on a common standard. Since different colleges use different standards of grading, a comparison of the raw marks is not satisfactory. A "B" average at one school might indicate more ability than an "A" average at another. Taking the Medical College Admission Test gives the exceptional student from a remote small

TABLE 1		
Grades	No. of Students	Percentage of classes
A	14	6%
A—	100	44%
B+	68	30%
B	13	6%
B—	30	13%
C+	3	1%

TABLE 1: The undergraduate grades of the 228 members of the Harvard Medical School classes of 1957 and 1958.

college with which the committee has had little experience a chance to show how he compares with all other applicants throughout the country regardless of their schools.

The Medical College Admission Test is also important in others areas. If a student has a relatively low score and high grades he is apt to be a "strainer" or a "grind." If his test score is exceptionally high and his grades are in the middle or low range he is apt to have some difficulty, such as insufficient motivation, interpersonal difficulties, lack of energy, or external difficulties.

5. *The myth that the student must have an "A" average:*

The average undergraduate grades of the 228 members of the classes of 1957 and 1958 may be seen in Table 1.

Although the average grades are exceptionally high, the number of students with a "B" average or less comprise 20 per cent of the admissions. This shows that grades are not the primary consideration.*

6. *The myth that the student must be a leader in extracurricular activities:*

There are only four or five men in next year's entering class with no significant

* Editors Note: To save those of our readers who are considering a letter to the Editor the price of a postage stamp, the data in Table 1 may be re-calculated to show that the number of students with a B+ average or above comprise 80 per cent of the admissions. The conclusions for these new figures have not yet been drawn.

TABLE 2		
	No. of Men	Per- centage
Leadership in no activities	45	39%
Leadership in one activity	45	39%
Leadership in two activities	23	21%
Leadership in three activities	1	1%

TABLE 2: The number of activities in which the members of the Harvard Medical School class of 1958 were in a position of leadership in their respective colleges (based on participation in varsity athletics, presidencies in organizations and editorships of publications).

extra-curricular activities. However, if participation in varsity athletics, presidencies in organizations and editorships of publications are used as evidence of leadership, the figures applying to the 1954 entering class may be seen in Table 2.

7. *The myth that the student must have excellent recommendations from his college:*

In the present entering class, 19 (17 per cent) of the 114 students received from their colleges a recommendation which described them as less than excellent. In many cases in which there was a disparity in the letters received about a man, his college was contacted for additional information. The weight assigned to letters of recommendation is often dependent on the committee's experience with the writers.

8. *The myth that the interview at the Harvard Medical School is the sole basis for selection:*

Twenty-nine (25 per cent) of the 114 students who were accepted for admission in the class of 1954 were placed by one or more interviewers in less than the top category. In a number of instances, where the interviewers obtained different impressions of a man, other members of the committee also talked with the applicant. The members of the committee are well aware of the difficulties in evaluating a man on the basis of an hour's interview. Due allowance is made for this.

9. *The myth that the student's chances of admission to medical school are small because of the large number of appli-*

cants in relation to available places:

The number of applicants to medical schools during the past six years may be seen in Table 3.

These figures are alarming to most medical educators. If this rate of fall is maintained, there will soon be insufficient students to fill the places in medical schools. At the present time, the caliber of applicants to medical schools considered as a whole is falling.

Fortunately, at the Harvard Medical School, although there has been a slight fall in the number of applicants, the intellectual caliber of applicants as measured by the Medical College Admission Test, and other criteria, has remained at the same level.

These are the facts, and the practices. These figures clearly show that the commonly held beliefs about Harvard Medical School admissions are indeed myths and not a desirable basis on which to plan a college education which will lead to acceptance in medical school. Although it is true that high grades, good recommendations and extra-curricular activities help, they are by no means the *only* criteria and will not assure entrance into this school. The non-science major has a slight advantage percentage-wise over the science major.

If this is true, then it is very pertinent to ask two questions: why do such myths about admissions persist, and what does the Harvard Medical School desire in its applicants?

TABLE 3 OVER-ALL STATISTICS	
Year	No. of Applicants to Medical Schools
1949	24,434
1950	22,279
1951	19,920
1952	16,760
1953	14,651

TABLE 3: The number of applicants (*not* applications) to the medical schools of the United States during the period 1949-1953.

The question concerning the persistence of the myths is an important one because if we knew the answer we could do much to change conditions. When false beliefs are held in emotionally laden areas they must serve some useful purpose. If we knew the purpose they serve for the pre-medical students and those concerned with advising such students, we would be well on our way to acquiring an answer. The number of communications received by me since it became known that I would speak on this subject bear witness to the deep emotional interest of many in the problem. The firmness with which these myths are held can be attested to by those who have attempted to change such attitudes. In discussing the subject, one Dean told me "they won't believe you." Another Dean decided on the basis of studies of his graduates' admissions to medical schools that the preconceived notions of the students governing admissions practices were erroneous. He was dismayed when he presented these facts to students and faculty members, to find that they were not believed. He then asked me the question, "Why don't people believe facts?" All of our experience points out that bare facts have a difficult time in being accepted in emotionally explosive areas.

It is realized that in every myth there is a "grain of truth." You may say that the Harvard Medical School is an exception and that a boy in preparing for medical school must meet the requirements of a number of schools in order to be assured of admission. The scientific requirements here are minimal and flexible. It is true that some medical schools have more scientific requirements. However, such schools are not large in number and many of them must limit the character of their admissions by the terms of their charters. As an example, State medical schools must often limit their admissions to their own states. The report of the Subcommittee on Pre-profession Education of the Survey of Medical Education would lend support to the view that the trend today in pre-

medical education throughout the country is in the direction of a broad liberal education as the most desirable undergraduate preparation for a medical career.

What exactly does this medical school look for in its prospective students? What is the basis of selection? Although no hard and fast rules are used, a better understanding of admission practices can be acquired if you will allow me to take you into the climate of the committee, let you know some of its thinking and how it operates. First, the committee reflects the thinking of the medical school, of college educational practices and the society of which we are a part. Medicine is recognized as a dynamic profession, one which constantly advances, discards outworn ideas, experiments with new concepts and although rooted in a long tradition, is yet flexible enough to shift to meet new challenges. At the present time, as in so much of our society, medicine is in a ferment. Dr. Berry has discussed this problem as it related to medical education in detail in his presidential address before the Association of American Medical Colleges. This is important reading for all doctors. Briefly it might be said that medicine is rapidly shifting from the "patient as a disease" to the "patient as a human being." This does not mean that we are becoming less scientific, but that holding fast to the constantly advancing natural sciences, we are more and more incorporating into our thinking, research, practice and teaching the contributions that the behavioral sciences have to make. We begin to glimpse that many of the problems of patients are related, not only to their anatomy, physiology, biochemistry and pathology, but also to their personalities, their families and their community. Hand in hand with this, departmental barriers are crumbling and there is increased interest in the preventive aspects of medicine and the defining of health in more positive terms than freedom from disease.

For the best care of the individual patient, our doctor of the future will have

to be equipped with a much broader view of human beings than was possible in the past. This must be constantly borne in mind in the selection of candidates for admission.

Beyond the rapid changes in the conception of the care of patients, there are larger problems involving the relationship of the practice of medicine to society. There is vast dissatisfaction, both within and without the profession, about the economic and social aspects of medicine. The doctor is under attack from many sides and is losing much of his historical status and prestige in the community. The title of a recent article in *Fortune* magazine, "The M.D.'s are Off Their Pedestal," and the rapidly falling rate of medical school applicants, attest to this. We badly need some men in medicine, not only skilled in the natural sciences, but also so skilled in human relations and community problems that they will develop the wisdom to find workable solutions to these enigmas. Leadership in the best sense of the word is badly needed here. This aspect of medicine should also be thought of in connection with the selection of students.

Now, of course, we need all kinds of doctors and this committee keeps constantly in mind this need for diversity. As Dr. Berry remarked, "We should have room in our stable for all kinds of horses." Certainly, we want the exceptional scholars, those devoted to the natural sciences who will be the pre-clinical science teachers and investigators of the future. Certainly we want men with various unusual talents such as writers, electronic engineers, etc., who present themselves for admission each year. However, above and beyond this for the vast majority of applicants, once we have satisfied ourselves, on the basis of their previous scholastic performance and Medical College Admission Test Score, that they will perform scholastically without undue strain, the committee looks for the man's suitability as a future physician. It is interested in the breadth of his mind, the broadness of his vision, his creative

imagination, his character, his integrity, his capacity for growth, his ability to relate to people, his emotional maturity, his motivation, his degree of self-understanding and his capacity for leadership. Although some may disagree with this statement, we feel that such qualities for most students are best brought to fruition at the college level by a broad liberal education. This is not to deprecate scientific education, but to deprecate the narrowness such an education often imposes when pursued to its ultimate goal at the exclusion of many other important areas of knowledge. A man may well major in science but he should leave sufficient time for the pursuit of adequate studies in other areas. There is also the matter of timing. Most educators feel that broadness in education at the undergraduate level is a necessary prerequisite to the relatively narrow specialized education at the graduate level. Quoting Chancellor Lawrence A. Kimpton of the University of Chicago, "The doctor as a leader should know the true and the good, and it could do no harm if he appreciated the beautiful. The typical pre-medical curriculum runs a serious risk of educating out of the student the creativity, the critical appreciation, the ability to think which are so necessary a part of leadership."

Thus we might sum up by saying that diversity is important; that there is always room for the unusual talent or exceptionally able scholar, but that in the main, it is the broadly educated, mature man who stands the best chance of admission.

Now that we've stated our ideals, practically speaking, can we implement them? There is the difficulty. This committee consists of fourteen members and the Dean. Half represent the pre-clinical sciences and half the clinical disciplines. It meets weekly, all afternoon, from October to March. Each applicant seriously considered for admission is interviewed by one or more members of the committee assigned in rotation, or in the case of those unable to come to Boston, by Alum-

ni. Once all the material, i.e. grades, recommendations, etc., is completed on each student, it is mimeographed and given to each member of the committee for study prior to the meeting at which the student will be considered. At a typical committee meeting each student is discussed by the committee much as a staff conference might discuss a patient. Always a candidate is compared with the other candidates who are applying for admission. If the committee cannot agree, or needs more information, the applicant's case is tabled until another meeting, when he is again discussed as an individual.

An effort is being made by the committee to meet with the men in the colleges concerned with pre-medical education. This will serve the purpose of furthering the understanding of common problems.

The care which the committee takes may be seen in the case of an applicant who had high grades during the Spring terms and medium or low grades during the Fall terms. Close scrutiny of his record showed that he was a football player and that the great amount of time expended on this activity could account for his irregular record. He was admitted. Other practices of the committee have been alluded to but bear repeating here: In many cases where the man seemed excellent and there was a discrepancy between his record and his recommendations, or between the recommendations themselves, his college was contacted for additional information. If the Harvard interviewers disagreed about him, or the interviewers' appraisal was at a variance with his record, he was often interviewed by several other members of the committee.

Naturally, in any situation involving judgment some mistakes will be made. Fortunately at Harvard Medical School the number of excellent applicants is such that the class could be filled several times over without much impairment of quality. The admissions committee is put in the position, as described by John Finley, of a group of connoisseurs trying to distin-

guish between 1928 and 1947 vintage champagnes. The committee approaches the task with humility, always mindful of the studies at another University in regard to selection for another profession. Those who had doubts about their ability to select students were found to be as good as chance in their selection; those who knew exactly how to do it were worse than chance.

At the present time, 3.9 per cent of the students admitted fail to graduate for various reasons, such as lack of interest, academic failure, illness and accidents, changing to a Ph.D. course, etc. This figure is approximately the same as that of other leading medical schools. If it were less than this, it would mean that the admissions committee was too conservative, and unwilling to take a risk on certain men. This would result in the failure of the School to gain some exceptionally talented men.

The importance of research in this area cannot be emphasized too much. We need follow-up studies beyond medical school of both the men accepted and those rejected. The most pressing, and in many ways the most difficult item on such a research agenda would be objective criteria of a successful medical career. Others of importance which come readily to mind are an understanding of the motivation, attitudes and personality of the students, and of those factors within the student and within the School which impede or accelerate the learning and the maturing process. A technique for ferreting out the "late maturer" would also be very useful.

I feel sure that I can speak for the other members of the committee in stating that we want your support, and the benefit of your thinking about this problem. Write us your thoughts about admission policies. They will be given the most careful consideration by all of us. In this difficult task, with all of the emotionally laden attitudes and strongly held myths guiding the conduct of the applicants, we need all of the constructive help, guidance, and advice that we can obtain.

Gather Ye Codfish While Ye May!

JOHN SHILLITO, JR., '52

To the London-bound air traveler, Newfoundland is Gander, the last stop before Shannon. To the rest of us, who just barely passed our geography, Newfoundland suggests barren cliffs, icebergs, cold, maybe even Eskimos.

Many of the 24 recent H.M.S. grads who spent time in "Newfie" would admit, if pressed, that they too had pretty vague ideas about it before abandoning plans for a casual summer—perhaps a few easy voluntary courses with afternoons free for the bleachers—and amazed family and friends with news of a projected trip to the land of the squid and the cod.

By a unique arrangement, at least three Junior Grenfells and Boy Livingstons found they could escape the Boston heat for two-and-a-half months in the summer of their fourth year, and even though Dottie Murphy and the rest of that office up there wouldn't give credit for this noble mission, at least it would enable one to make reference to a series of appendectomies, to the manner in which a diphtheria epidemic had been handled, or even to the number of teeth extracted. Here was a chance for a would-be G.P. to find out what it was to trudge through the night, black bag in hand, an unheard-of opportunity for the embryo surgeon to "cut!", and a perfect summer for him who would blend medicine with boating, fishing, hunting, and a simple life with rugged people.

October, 1954

Our sage brethren in white implied that internship indeed was incarceration; this, then, was the last chance to indulge that old urge. Care to come?

49-40 NORTH; 54-50 WEST

There stands the Notre Dame Bay Memorial Hospital, Twillingate Islands, Newfoundland. Forty-five miles north of Gander Field, in the center of the bay whose name it bears, this 135-bed hospital nestles between two hills on the southern of a pair of connected islands known collectively as Twillingate, or Toulanguet, as it appears on the chart. The island population is only about 4,000, yet the hospital serves 30,000 people who inhabit the 40-by-90 mile Notre Dame Bay area.

In 1912 the need for a hospital in this area prompted Twillingate townspeople to approach Dr. Wilfred Grenfell for advice and backing. At the time financially strapped himself, he nevertheless encouraged the committee to persevere, which, being true Newfoundlanders, it did, raising \$60,000 in the next seven years. By 1924 the hospital was functioning, dedicated to the men of that region who died in World War I.

Shortly after the hospital opened, a medical student from Johns Hopkins chose to spend a different sort of summer. At Twillingate he met the nurse who was to become his wife, and the island that was to become his life. After graduation and

internship, Dr. John Olds returned to Twillingate, and there he has been ever since, soon becoming chief of the hospital, usually helped by three Canadian physicians, although World War II found him alone. To aid during the busy summers, Hopkins students were imported as Resident Physicians, and for a time enjoyed this monopoly. In 1949, apparently no adventuresome spirits could be found at Hopkins, and the first Harvard contingent arrived, inspired by the stories of Dr. Ed Murray, of our School of Public Health, who had recently returned from a summer with Dr. Olds.

Since then, each winter a little notice has appeared on the Vanderbilt Hall bulletin board, enticing volunteers to seize parka and stethoscope. The Twillingate "alumni" do the recruiting, fan the wanderlust in the hearts of susceptible H.M.S. III, exaggerate no more than the average fisherman, show colorful photographs, look appropriately wistful, and, when an eager group finally has been assembled, sit down in closed meeting and begin the heart-breaking task of deciding which of the dozen or so applicants may go. Dr. Murray keeps a watchful eye on all this, alternately fanning the spark and restricting the blaze.

SETTING

The people of Twillingate are fishermen, direct descendants of Scotch, English, or Irish colonists. For some reason most of the latter have been relegated to one island, nearby Fogo, from which few move their homes. Only there does the homesick Bostonian see a familiar profile!

They live in self-made houses, two-storied, with inevitable low ceilings, iron stove, kerosene lamps or gas mantles, and outdoor plumbing. These homes cluster in groups of three or twenty along the shores of coves where boats can ride out the frequent storms which sweep in untamed from the North Atlantic.

The population has intermarried for gen-

erations with almost no dilution of its pure stock, and now the coves bear the names of the first settlers, as do most of the children found helping their fathers and grandfathers on the "flakes" and "stages" where codfish are dried and salted. The language is English, but the idiom, at least for the first several encounters, is difficult. We soon learned that "What seems to be the matter?" brought only a clipped "That's for *you* to find out!" but that "What do ye find?" would uncork a flood of symptoms sufficient to put the chronic Boston clinic visitor to shame.

On Twillingate the coves are connected by dirt roads, on which can be found horse-carts, bicycles, jeeps, and even brand new automobiles. Taxi service from the hospital is as prompt as any radio cab company could provide. But in place of the indomitable Boston pedestrian are equally stubborn goats, sheep, cows, children, and rocks to make otherwise peaceful trips hectic. House-calls in the hospital's Willis station wagon were fraught with nauseating fumes, flying hood, and a tail-gate regularly left in the dirt on the proximal side of every unanticipated bump!

Elsewhere the best means of transportation is by open boat, usually driven by indestructible two-cylinder gas engine. These craft, like the houses, are home-made. Regardless of size, within a given community all are likely to have identical lines, for all have been scaled from the same wooden block model.

The family diet is principally cod, supplemented by a precious few turnips, carrots, potatoes and greens from the back yard. Meat, when it can be afforded, is usually salted, for only the hospital has a regular supply of ice, cut from the brown contents of a reservoir which was originally a swamp above the town. We blamed our personal cases of nausea, vomiting and diarrhea on the solutes and sediment of this tea-colored tap-water. Nutrition for many families is, at best, borderline. Busy as each member is making a living, disease often is neglected



TWHINGATE SCENE. EACH FAMILY HAS A "STAGE," A SMALL SHED ON STILTS WHERE FISH ARE CLEANED AND SALTED. THEREAFTER THEY ARE DRIED IN THE SUN ON THE SPRUCE-BOUGH COVERED "FLAKE."

until disabling, providing full-blown syndromes for the student, but needless tragedies almost daily. Infectious disease can spread to minor epidemic size if weather should prevent sending a boat for the doctor. Tuberculosis is encountered frequently; about one-sixth of the hospital's beds are devoted to pulmonary or bone TB. Childbirth occurs without medication, at home, and frequently for most mothers. It was not an uncommon frustration to ask a middle-aged multiparous woman in late pregnancy when her last menstrual period had occurred, and to be stopped with the reply: "Doctor, when I was thirteen!"

For a fee of about 85 cents per member, a family can enroll in the "Contract," which makes available hospitalization at reduced rates, and guarantees one visit per

annum of the "Bonnie Nell," the hospital's sixty-foot, diesel-powered, floating OPD. About 20,000 families subscribe; with this income and roughly \$45,000 annually from the government, the hospital survives. For a patient on the Contract, a major operation costs \$30, and one month's hospitalization about \$50.

THE VOYAGE

The enthusiasm of Foster, Hiebert and Nevis (H.M.S. '50) prompted the lengthening of the season from three to five months, so that the next summer six of us each spent two and a half months with Dr. Olds. Anderson, Pittman and Rasmussen disappeared right after exams in June; Giannelli, Wilber and I planned to relieve them in mid-August. It developed

that weather prevented us from reaching Gander before the others left, but the welcoming committee was liberated from dry Twillingate for an extra 24 hours because of this, and the warmth of the eventual welcome did not suffer in the least!

Our stay in Twillingate was to be much like a Boston internship—room, board, laundry and a wealth of experience—our transportation was at our own expense. The length and uncertainties of land and sea travel made flying the practical choice. About \$156 round trip bought a seat on a Boeing Stratocruiser, a delightful machine with upper and lower decks, two hostesses, and the usual other overseas delicacies such as five-course meals surrounded and interspersed with wines and more heady beverages. Apprehensions were pleasantly dispelled before the ship leveled off at 17,000 feet.

Although we were game to make it to Shannon by the time Newfoundland's barren south coast loomed up at us like the face of the moon, we descended the ramp in bright sunshine at Gander four hours after leaving New York. A note at the terminal told us of the departure of the others the day before, and as we read, a friendly voice inquired, "You're from Harvard, aren't you?" and we met Dr. Harold Wood, second in command at Twillingate.

When suitably refreshed, we were introduced to a Dr. Joe Cantwell, who had a general practice on the north coast and a small Chevrolet which was to be our next means of transportation. Into this squeezed the five of us, Mrs. Cantwell, Ted Drover, the skipper of a forty-foot boat which was to take us to the island, and the maximum baggage allowance for three air passengers. The Trans-Newfoundland Highway had been cut, but no more, and the way was straight but far from level. At the Gander River we drove onto a log raft and slithered across cold black waters in the moonlight. Already home seemed far away!

In the coastal town of Lewisport we

spent a pleasant evening with the Cantwells, watching a few emergency treatments in the office with great anticipation. We were surprised to see only one syringe and needle, and were more than surprised to hear that since these were used daily for penicillin, among other things, they thereby sterilized themselves! So we began our lesson.

Next day we boarded the forty-foot cabin power boat which Ted operated part time as an inter-island ferry, and set out between beautifully wooded shores into a crystal blue day. Soon we were taking tricks at the wheel, and snores from the cabin adjoining the pilot house announced that Ted had complete faith in our knowledge of these waters, and a considerable fatigue from the past evening's festivities. Fortunately we had purchased two charts in Boston, and managed to thread our way 40 miles to Twillingate, where the skipper was awakened to dock his craft at the foot of the hospital. So ended the second lesson—navigation and seamanship.

THE HOSPITAL

The staff was quite large when we arrived; four doctors for the 130 patients. Dr. Olds, in charge, was assisted by Dr. Wood, who then had several years of surgical experience. Bob Lawton and Craig Loveys were at the intern level, having received their training in Nova Scotia and Canada respectively.

We were shown to our quarters in the Staff House, the large structure which towers above the older hospital, and serves as home for nurses, attendants, maids, doctors and medical students. Craig and his wife and little boy shared a pleasant five-room apartment at the end of the building; Mrs. Loveys could select her family's food from the hospital larder, without charge. We three shared two rooms on the first floor, which was also reserved for some of the more senior nurses. Such a pleasant change from Vanderbilt Hall! In addi-

tion to obvious social assets, we enjoyed flickering electric light from one of the island's few generators, plenty of hot water, clean linen, and on Sundays breakfast in bed. A ramp at the end of our hallway connected with the second floor of the hospital, making night calls easy. Since there were no phones in our rooms, the girls thought twice before arousing us, but once they had made the trip, were never reluctant to take whatever measures experience taught them to be effective in getting us up! This also modified our sleeping habits—one of us spent some time in bed with a dead squid because his custom of sleeping in only pajama tops forbade his flight in the presence of the enterprising nurse who employed this method of reveille!

After a welcome from Dr. Olds and his

wife, we toured the hospital, and made plans to divide the patients equally among us: TB and pediatric wards to one, male medical and surgical to another, female medical and surgical to a third.

DAILY ROUTINE

Next day work began at nine. By custom everything ceased at dinner time for one hour, resumed until "tea-time" about 5:30, and then stopped for the day. We set up a schedule whereby one was assigned to the OR and thereafter had the day off, another to the OPD and to various brief morning tasks in the hospital, and the third to the OPD and to whatever house calls might come. Anywhere from two to six procedures were undertaken daily in the OR between 9:00 and noon.



THE HOSPITAL AND STAFF-HOUSE, WATCHED OVER BY DR. OLD'S HOME. THE WHITE TWO-MASTER IN THE FOREGROUND IS THE "BONNIE NELL."

Dr. Olds was undaunted by the nature of a case, and the same team was likely to perform gastrectomy, laminectomy, tonsillectomy, appendectomy or pelvic surgery in the same morning. Cystoscopy was done under spinal in X ray by whoever was free; usually the home-trained orderly, barber, radio-man and general handy-man set the patient up and even passed the scope!

We first-assisted at the start, then did the appendectomies and tonsillectomies routinely, assisted by Bob or Craig, if available, or by Rose, the scrub-nurse, if they were busy. One nurse anesthetist administered open drop ether; any of us gave spinal.

Blood-work was done by another jack-of-all-trades, Bud Young, who ran the lab, took the X rays and read most of them, dispensed all medicines, and incidentally had a fine classical record collection which all enjoyed through a very "Lo-Fi" set powered by a gasoline generator! The I.V.'s to be started were always at the barest minimum, since the source of fluids was a continuously-perking still in one corner of the lab. Plasma was available, but the blood-bank was the village itself. If donors of known type were unavailable or too recently depleted, volunteers of unknown type were cross-matched until one found compatible. Typing serum was available, but this was the custom, and the need for transfusion infrequent enough to preserve it. Admissions were absorbed rapidly with a minimum of pencil-pushing. Many had to wait their turn in one of the local "hotels" until a bed became available.

Twenty or thirty out-patients were seen daily by at least three of us. Between cases the OR team helped out in gown and gloves. The OPD rang continually with the half-stifled groans of someone parting almost painlessly with a firmly-set tooth or long-neglected root. Our lessons in dentistry came early and were brief and to the point. We averaged close to 300 teeth apiece during our stay.

House calls were always different, and as a rule, never turned out to be what the chief complaint implied. In preparation for the awesome day when we would find ourselves alone and far from advice, we carefully packed and repacked the two black bags—the general kit and the obstetrics kit. The Merck Manual always went along, for its prescriptions if nothing else. We were likely to be called to any spot on the Twillingate islands, and to any of the several nearby islands. The Willis wagon or a taxi provided transportation on the home island, fishing boats elsewhere. Often a long hike through the woods was necessary after arriving on the next island, for the quickest way through the bay was a straight line, walking and borrowing boats as necessary. Giannelli disappeared for a couple of days because storms prevented his return; Wilber was long overdue in good weather, which was puzzling until we learned that he had stayed on another island for a wedding to which his status of doctor lent a most special atmosphere!

Whenever the doctor arrived in a cove, he found himself swamped by requests for visits to those families who had waited for someone else to send the boat. Only our successors knew what we missed, but our limited diagnostic acumen turned up pneumonia, tuberculosis, cholecystitis, acute glomerulonephritis, cancer in various forms, diabetes, congestive heart failure, incomplete abortions, deficiency diseases, scabies, post-measles encephalitis, ulcer, psychoneurosis, and, of course, pregnancy. My first home delivery was enlivened by the two-year-old daughter watching through the foot of the bed, thumb in mouth, the five-year-old son and his cronies peeking through the bedroom window, and the neglected cat running back and forth across the once-sterile instruments!

Night-calls occurred too, even with transportation problems so great, for a distraught mother usually waited till father came in from the fishing grounds before a boat was sent for the doctor. By the time

a six-hour round trip was completed, the baby's colic was like as not to have disappeared, but always there was food and tea waiting for the doc, and after a cup or two of jet black Newfoundland tea it was a pleasure to ride in crisp, clean air under northern lights which sometimes filled half the sky with evanescent beacons of intangible hues.

TEMPORARY ADDITIONAL DUTY

Although the "Bonnie Nell" was usually staffed by one doctor and nurse in addition to its crew of three, Dr. Olds consented to send one of us at a time as assistant physician and full-time dentist and X-ray technician.

During the six or seven navigable months, the "Bonnie" toured Notre Dame Bay, returning each three weeks or so to replace the medical staff and to give the crew a few days with their families. She boasted a one-room clinic with examining table, running water, X-ray machine, a large store of pills and lotions, and equipment enough for minor surgery. In the lounge on the main deck we established the dentist's chair, a camp-stool well braced against the stove to prevent premature escape, and while one line of patients waited aft for the clinic, another curled around the fo'castle while some H.M.S. IV pulled teeth at fifty cents a yank. Some patients were stoic enough for eight or nine dollars' worth at one sitting!

Where possible, the boat docked. More often she anchored, and since word of the visit was telegraphed ahead from the hospital, entire families were on the look-out, and the sides were soon lined with fishing boats and rowboats. Where docking was possible, the procedure was sometimes different. A scout, frequently one of the younger daughters who could be spared from daily chores, was on hand to size up the doctors as the boat docked. If this test was passed, a volunteer with an aching molar bravely strode aboard and announced

that extraction was in order. As the novice strained away to free the invariably large, firmly-rooted tooth, spies peered through the lounge window and decided, from the relative distribution of sweat on patient's and physician's brow, who was winning. If it were the latter, a flood of patients; if not, retirement until the next port!

In the floating clinic as at the hospital and in the home, everything from the itch to cancer was seen, and treated aboard, at home, or after much persuasion, the patient was sent to Twillingate. Thrice-daily communication with the hospital was maintained by voice radio; the OR orderly doubled as radio operator, since the transceiver was in the scrub-room! Films which were taken on board with the portable G-E machine were packed in their original containers and sent back to Twillingate by the first available fishing boat. There they were developed and read to us by radio two or three days later. If an unsuspected lesion were thus found, word was sent back to that patient to go to the hospital. He usually did.

Joe Wilber and I each spent about ten days on a "Bonnie" circuit. Stan, by winning a toss, had the rare opportunity of taking over the general practice of Dr. Cantwell in Lewisport, on Newfoundland's north coast. Dr. Cantwell took off for ten days of hunting in the interior of the island, leaving Stan his practice, his car, his home, and, not without reservation, his wife! It is only fair that I refer you to Stan for details of this remarkable experience.

RECREATION

Twillingate lies only a few miles north of the latitude of Seattle, Washington. In the absence of the accustomed city diversions, we found our spare time spent in the warm sun, cool breezes, or crisp starlit nights. The lobster season had ended before our arrival, and we saw enough cod on the dinner table to lose interest in fish-



"JIGGING" FOR SQUID IS LESS AN ART THAN
DODGING THEIR JETS OF WATER.

ing for them. There was, however, the memorable trip to the squid-jigging grounds in the fall. Annually the squid arrive in shoals, and are caught for export to oriental markets for food, for local bait, and on occasion, for adventuresome local appetites to test. To "jig" for squid is the term applied to hand fishing using a unique multiple hook without barbs.

There is a song:

"For if you get cranky without a silk hanky
You'd better steer clear of the squid-jigging ground!"

The double-ended jet monstrosities are readily hooked, but the sport begins when the head end breaks water, at which instant a stream of several ounces is directed at the holder of the line with sufficient force to carry 12 feet or so into the air. Drowned or startled, the novice relaxes efforts to complete the catch and allows the line to dangle, whereupon friend squid loads again through the still-immersed tail, and fires

until hauled clear or allowed to sink back under water. Thoughtful squid reserve their charge of ink for this moment, which insures a favorable turn of events. We spent one very wet 30 minutes landing 30 squid, which, later fried, became a delight resembling at once lobster newberg and old inner-tube.

A sympathetic local merchant loaned us his home-made, schooner-rigged whale-boat, and with visions of a second *Kon Tiki* in our heads we learned that we could not point high enough to tack out of the wind-swept harbor into open Atlantic. Although Hiebert the previous summer, and Pittman before us, each won an ever-dwindling bet by swimming the icy harbor, we found the many lakes much warmer and more congenial.

On Twillingate's less populated south shore, Dr. Olds kept a small cabin to which we could escape for weekends when "city life" palled. There we slept, read, or perhaps enjoyed a rare, imported or home-made exception to the island's dryness, with only wind in the trees and surf at the doorstep to break the stillness.

In the late fall the focus of attention was changed by the migration of thousands of salt-water birds of all sizes and descriptions, catalogued by Jim Pittman, blasted out of the air by Stan Giannelli, and savoured, with varying response, by most of us. Amidst the blueberries, partridge could be found, and even if artillery often was heard in vain, a trip through the purpling moors made the 5:30 reveille worthwhile.

There was only one movie house on the island, and weekly the familiar smell of cod would be augmented by that of some old flickering gem, silent or talkie, which would provide escape, it is true, but of such a sort that the return to peaceful reality was much the more pleasant change. More often, evenings were spent in the home of one or another hospitable neighbor, in the company of our female compatriots, whose charms grew more evident with the passage of every week away from

home! Old jazz records, the community sing, or the old family organ were never more appropriate or more welcome.

All Twillingate "alumni" have a soft spot somewhere for their ten weeks' stay in the land of the Cod, probably not for the specific professional experiences enjoyed there, but because they were suddenly liberated from the text and the clinic to find themselves confronted with people instead of patients.

This was a voyage into the rapidly dis-

appearing era of the old family doctor, where, for a few short weeks, we basked, undeserving, in the respect earned for this title by men such as John Olds.

Aeknowledgements:

Dr. Murray supplied the details of the hospital's history. Foster, Hiebert and Nevis were kind enough to loan their Public Health Report for medical and financial statistics. All photographs are from Kodachromes by the author.

Twillingate "Alumni"

H.M.S. '50	Shea, Cyril Sachs, Marvin Ross, Merrill	U.S. Naval Station, Chelsea, Mass. 7373rd USAF Hospital APO 10, New York Deceased
H.M.S. '51	Foster, Jerry Hiebert, Clem Nevis, Arnold	Presbyterian Hosp., New York, Medical M.G.H. Boston, Surgical Service M.I.T. Biology Dept., Cambridge
H.M.S. '52	Anderson, Al Giannelli, Stan Pittman, Jim Rasmussen, Howard Wilber, Joe Shillito, John	Mt. Sinai Hosp., Minneapolis St. Vincent's Hosp., New York, Surgical M.G.H. Boston, Medical M.G.H. " " B.C.H. IV Medical Service P.B.B.H. Surgical Service
H.M.S. '53	Simon, Harold Rothberg, Harvey Farrell, John Coley, Geoffrey Mcdearis, Donald Miller, David	New York Hosp., Medical Service M.G.H., Medical Service Roosevelt Hosp., New York, Mixed Surgical P.B.B.H. Surgical Service Barnes Hosp., St. Louis, Medical Service Strong Memorial Hosp., Medical Service
H.M.S. '54	Borg, Kenneth Holyoke, Edward Judd, Alvan Martin, Donald Smith, Brainard Upjohn, Harold	P.B.B.H. Medical Service Johns Hopkins, Surgical Service M.G.H. Surgical Service M.G.H. Medical Service New York Hosp., Medical Service P.B.B.H. Surgical Service
H.M.S. '55	Becker, David Whitehill, Ben Muller, Arnold Parshall, William and Ross, Gilbert Goodwin, Donald	Syraeuse Medical School Johns Hopkins Medical School



Inside

H.M.S.

1954 Class Day Address

MARION DUGDALE, '54

Honoured Dean, Members of the Faculty, Ladies, Gentlemen, and Children, *Fellow Harvard Men*:

For the singular honour you bestowed upon me when you so unanimously named me our class speaker, I thank you. The choice was unusual, it was a break with tradition, a thing done hesitantly at this venerable institution. Perhaps it was not even wise. A class-day speaker should be, if anything, a true representative sample of his class, and this distinction I certainly cannot claim. And yet, could anyone qualify, for we are a motley crew gathered from many widely separated places and some are even female. But a process of transformation has occurred in the past four years, a process which has in great measure transcended these diversities and made us all into members of a very select species, that of the Harvard Man, or more specifically, the *Harvard Medical Man*. It is this process which I would briefly trace for you and hence the Harvard Man will be the hero, or heroine, of my story. I will entitle it "The Prenatal Course of the Harvard Medical Man."

The First Trimester: The time during which the embryo assumes shape and forms its major organs, i.e. the period when basic structures are laid down, a time of great upheaval and transformation, *the year of the basic sciences*. The future Harvard Man was almost unrecognizable during this period. In appearance he strongly resembled a garage mechanic and had an unmistakable aroma which made him repugnant to others. He was in reality quite amorphous and responded non-specifically and unpredictably to a wide variety of stimuli. The anatomists got first shot at him. He was soon shorn of the self-assurance and cockiness brought from his former life and started anew on his search for truth with a more becoming humility. However, he resisted this change with animation and in asserting his habitual independence was rewarded by a fine crop of maggots when he deliberately ignored the injunction against open windows. This sobered him a little bit but only temporarily and by Christmas time his spirits soared as he joined in the lusty singing of carols from Gray. These antics naturally

alarmed the anatomists and there were several threatened miscarriages. However, he made steady progress in the arts of dissection and the construction of mnemonics and in due time was delivered to the physiologists and biochemists in a somewhat less primitive form than that in which he had been received. But he still had a long way to go before he was out of this, his most dangerous trimester. His activities were now curtailed by the fact that he was firmly implanted in Bldg. C but here he developed rapidly as he delved in the secrets of life. As Aesop puts it: "He found that the Belly, in its dull quiet way, was doing necessary work for the Body, and that all must work together or the body

will go to pieces." He found this out by taking tall drinks of Barium himself. This was not his usual beverage and he found the old kind much more enjoyable. At the same time he developed a healthy regard for the Roentgen ray. But his investigations did not stop with the Belly and in the name of science and the advancement of knowledge he willingly fasted, subjected himself to burning lights, to ice-baths, to electric currents, to whirling chairs; he was dehydrated and over-hydrated, he was put unclad in a freezing room and rubbed with ice by leering colleagues, and he was often seen carrying a large bottle.

This was a trying time for him but he



"... he was put unclad in a freezing room ..."



"... dark gray flannel suits, four buttons ..."

survived, emerging from this period of probation with all his basic structures laid down. He was thus ready for the *Second Trimester*: the stage of differentiation during which the structures developed during the first trimester are prepared for function, the *preclinical year*. He was no longer concerned primarily with the grosser structures alone and hence became an accomplished microscopist. At every turn he saw glimmerings of his goal and was periodically permitted a swift glance of the hospital life towards which he was striving. With intense joy he noted that the tribulations of his first trimester had not been for naught. He still occasionally used himself as an experimental animal but these instances became less frequent as he got farther away from the rarified purity of the basic sciences and approached the mundane practicality of his clinical years.

His appearance changed gradually during this period; he was now more often seen in white bucks, although wash pants persisted as previously; but generally he

was becoming recognizable as an embryonic member of the species *Homo Harvardiensis*, var. *medicus*.

The transition to the *Third Trimester*, the period of consolidation of gains already made and of maturation, was accomplished quite gradually and even so was a formidable strain, for he was after all, still quite embryonic although presumably he did have all his basic structures in a functional state. His resemblance to the mature *Homo Harvardiensis*, Var. *medicus*, became more and more pronounced for he now wore dark gray flannel suits, *four* buttons, and at times a stethoscope could be seen discretely peeping from his left hip pocket. However, he still lacked the self-confident air that was to characterize him as he got closer to term. To help him acquire this essential composure, he was given a long white coat and derived great comfort from it especially during the earlier half of his third trimester. Initially he was quite immature and required careful guidance for the vast field of clinical medicine was his in which to get lost. Some did get lost and were rescued only with considerable difficulty. So, equipped with small black bag and big white coat, he journeyed through medicine, surgery, pediatrics, obstetrics, and a great number of specialties.

His aims during this period were to develop (1) his powers of observation, (2) those muscles used in writing long lists of negatives, (3) a conditioned reflex to respond unabashed when addressed as "Dr.", (4) an unflagging patience and (5) an unfailing sense of humour. He, generally speaking, managed quite well, improving as he got older.

The second half of his last trimester finally gave him a panoramic view of what this whole thing was about, anyway. He was amazed as he looked back at his powers of endurance for he was now getting very restless and ready for extrauterine life. He developed a strange attachment to white suits and learned that eight, or even six, hours of sleep per day were utterly excessive. He also noticed that certain

muscle groups of the feet and low back were not strong enough to withstand the onslaught of daily rounds. Accordingly he turned to vigorous sports, e.g. skiing, in an attempt to correct this deficiency prior to delivery, with varying results. As he got nearer and nearer to term he put on a great deal of weight as might be expected in a healthy infant. This was mostly fat and fluid, for his intake of high calorie fluids had increased enormously. In fact, he often met with his colleagues for the express purpose of forcing these fluids.

His yearning for freedom was fostered by his wise preceptors and as he was given more and more liberty he was able to see that the field in which he had been gambling so happily was merely a tiny fraction of an enormous and fertile plain. This only served to increase his wanderlust and his restlessness became quite prominent. This led to such frequent changes in position that presentation could not be predicted.

Then rather suddenly, just before term, foetal distress became very apparent as the heart rate went rocketing upwards. Premature separation with early labour was suspected, but with the passing of National Boards the difficulty subsided and all again appeared to be going well, but only for a short while. Then labour began again, this time in earnest. There was a bloody Show and again the foetal heart rate was accelerated and irregular, but with one day of Comprehensive distress, a well-developed, robust infant *Homo Harvardiensis*, var. *medicus* was born. He was a bit cyanotic at first but with subsidence of the shock of such a Comprehensive delivery he appeared to be a normal healthy infant. This momentous event was aptly described by our illustrious predecessor, Dr. Holmes:

"So the stout fetus, kicking and alive,
Leaps from the fundus for his final dive.
Tired of the prison where his legs were
curled,



"... the onslaught of daily rounds . . ."

He pants, like Rasselas, for a wider world.

No more to him their wonted joys afford
The fringed placenta and the knotted cord."

You see him now in that brief period of quiescence and adjustment permitted all newborn before once again the process of growth must be resumed. He spends most of his time sleeping and is difficult to arouse.

There appears to be only one obvious developmental defect, and that is in the state of maturity of his judgment in coercing me into this honourable position. The poet Wallace Irwin wrote, and I will heartily concur:

"Sayin' nothin'," says the goldsmith, "is a woman's rarest skill."

"Birds should sing," remarked the doctor, "but a woman should be still."

Thank you.

*Fashions in Medicine and in Medical Education**

MERRILL C. SOSMAN, M.D.

Professor of Radiology at the Peter Bent Brigham Hospital

Mr. Chairman, Honored Deans, Ladies and Gentlemen: The situation in which I find myself this morning is similar to the one in which a small colored boy one day found himself. This boy was used as a messenger between the kitchen and the store room. Near the door in the store room stood a keg of molasses, and it was his delight to stick a finger into the bung hole every time he passed, and then to lick off the molasses. Eventually the day came when the exploring finger met no reward. Climbing up onto the table he accidentally rolled the barrel to the floor, where the molasses slowly went glug-glug-glug. Wide-eyed, the boy prayed, "Oh Lawd, please make mah mouth equal to mah opportunity." May He also make mine appropriate to this opportunity.

It was on or about the 24th of last March, while sojourning happily on the beach at Waikiki, that I received an air-mail special-delivery letter from Thomas F. O'Brien inviting me to be faculty speaker at the Class Day Exercises on Saturday, May 29. My immediate reaction was to decline the honor with thanks and appreciation, as I knew these affairs were held, when possible, in the open quadrangle, and it would be impossible to show any slides. There have been very few, if any occasions in the past 30 years when I have made a formal address without showing a few slides. I do remember one important public speech I made some years ago without slides, but that was a short one, "I do." I wondered why they wanted me to speak here, anyway, when there are so many more facile speakers available. Reading the letter again, it be-

came obvious that this was a spontaneous choice by at least one of the members of this class, and that it was a challenge as well as an honor I had to accept. And so, after another planter's punch on the terrace under the hau tree, I finally accepted with trepidation. That effectively ruined the rest of my trip, as far as complete freedom from worry and responsibility was concerned. Like an ominous cloud it hung over my head at all times, and in the most unusual places the thought would suddenly flash upon me—"You have to give the Class Day address on May 29,—better get busy." It finally came to me that I could get help, and that I should do two things as soon as I got home,—first, read the previous Class Day addresses, and secondly find out as much as I could from Miss Murphy about this particular class of 1954.

Turning to the Alumni Bulletins to acquire the necessary pious platitudes and glittering generalities, I found that Dunphy had given the address to last year's class, a very scholarly and erudite one, but I couldn't use any of it as it was full of Latin quotations. So I asked him who wrote it for him and he would not tell me, even claimed he wrote all the parts between the quotations himself! Previous to him there had been only three other such addresses in recent years, Conrad Wesselhoeft in 1950 on "The Privilege of Practicing Medicine," Jim Means in 1951 on "Medicine as a Calling" and ex-Dean Burwell in 1952, with no title except "Class Day Address." Unfortunately Dr. Burwell had already used every idea which I had laboriously collected, plus many other good ones which had not occurred to me. Turning to my own copy

* Class Day Address, 1954.

of Bartlett, however, I was heartened by a quotation from Seneca that "Ideas are common property." (That is the original Roman Seneca, Dr. Dunphy, not the Indian who played end at Holy Cross.) Calling on Miss Murphy to help me I was encouraged by her positive assurance that none of you had heard or read any of the previous addresses. But I was disappointed to find out that she had given up her interest in the extra-curricular activities of her students, and could not or would not give me any gossip or scandal concerning anyone in this class. She further said that when she was younger she knew all the dirt, but had gradually acquired an immunity, and the boys were behaving better every year anyway. At least she did not hear about it any more. And so I gave her the title of my address: "Random Reminiscences of a Roentgenologist"—but her curves and pot hooks must have slipped—the pencil marks in her notebook, I mean,—as it came out "Fashions in Medicine and in Medical Education." So I have to talk about Fashions!

—THE CHRISTIAN ERA—

Now the word Fashion may have several different meanings. It may indicate style or a prevailing mode, and applied to Medicine in this sense could be derogatory. I would prefer another definition, that of the pattern or form of things or their execution. The pattern of a man's thought, or of his way of thinking, or his approach to a problem is mostly conditioned by what he has been taught, but also by the current manner and mode of thought in his immediate environment. Thus, when I started my work at the Brigham 32 years ago, the basic idea underlying all disease processes and the production of symptoms was the concept of gross pathology. The leaders in both Medicine and Surgery were thinking in terms of morphological changes,—the pathological process going on, the stage it had reached, and its probable course in the future based on past experiences at autopsies. Henry Christian exemplified

the clinician of that day. He had served his term as pathologist and was quite competent to assay the results of an autopsy and to evaluate the histological changes in relation to the patient's symptoms and the course of the disease. Harvey Cushing was even more interested in the detailed knowledge concerning the basic histological structure of the brain tumors which formed such a large part of his surgical experience. For by their individual anatomic details he could prophesy their future course, again from past experience. Of equal importance to Dr. Cushing was the exact location of the tumor, for, with a few exceptions such as functioning adenomas of the pituitary gland, the symptoms of the brain tumor depended entirely upon its location and not upon its histological character. Dr. Cushing, like Dr. Christian, was not only an excellent neuro-anatomist, but also a very good neuro-pathologist. Under his direction and with his constant stimulus and support, Percival Bailey spent an enormous amount of time and energy first learning the new methods of Cajal and Hortegea for the staining of nerve tissues, and then restudying and reclassifying all the brain tumor material which had been so laboriously and painstakingly accumulated. When the Brigham Staff was being planned in 1911 and 1912, before its actual opening in 1913, neither Christian nor Cushing had felt the need of a department of pathology in the hospital. Each expected to have the autopsies done by an assistant and the final diagnosis checked by himself. Only if there was something very unusual would the pathologist from the Medical School be called in. Similarly, all bacteriology was to be done by the assistant residents, and all the laboratory work, which was mostly not-too-complicated studies of blood and urine, was to be done by the house officers in their spare time. Furthermore, no provision at all was made for an X-ray Department in their new hospital, and not until several members of the Staff made a grand tour of Britain and the Continent did they realize that these new Roentgen Rays

could do more than confirm the presence of a fracture and locate foreign bodies. Again they had planned only for technicians to take the X-ray plates, each to be read by the physician in charge of the patient.

Christian and Cushing flourished in an era of observation, description and analytical deduction. They studied the cause, progress and result of therapy on symptoms, rather than using the experimental approach of the men who came later. Cushing preached reliance upon a careful history and repeated thorough observation by one's vital senses as the keys to diagnostic success. He decried too much reliance on artificial methods, specifically including ventriculography, which had just been advocated by his former pupil, Dandy. Cushing deemed this procedure not only inadvisable but also dangerous and mostly unnecessary. To his credit, however, it may be related that he was using the method frequently in later years, and relying on it heavily in spite of his personal feud with its author.

Both of these senior colleagues of mine were great readers and copious writers. Christian's flare was for editorializing, aided by an excellent memory. Cushing's ability and facility as a writer exceeds the speaker's scope of description. I hope each of you has read at least one of his essays, or, better, one of his books, such as "Consecratio Medici" or "From a Surgeon's Journal." Cushing had a third gift of great magnitude, almost totally lacking in Christian,—the ability to conceive, plan and carry out critical experiments, usually in an attempt to prove a preconceived theory. It was the failure of Dandy's experiments to prove Cushing's conclusions which led to their historic quarrel!

But let them speak for themselves, of their attitudes and beliefs. Christian in his annual report in 1922 wrote, "The more diligently a disease is studied and the greater the interest in the patient suffering it, the more eager becomes the physician to be able to help the patient."

Even then, 32 years ago, he was emphasizing the value of the psychological approach, and warning of the dangers of "machine medicine." (Psychiatry in those days was practically synonymous with insanity. It was almost entirely static, and consisted largely of attempts to classify the various forms of insanity.) Cushing, in "The Medical Career," wrote in a similar vein,—"The practice of medicine is an art and can never approach being a science, even though it may adopt and use for its purposes certain instruments originally designed in the process of scientific research." That was not quite as pessimistic as my colleague Ernst Schmidt, who wrote me that "As a Science, Medicine is unique; one-half of it is wrong, and the other half debatable." But be it Science or Art or only a part of each and another part Trade, as defined by the Supreme Court in the Washington suit, I still must agree with Galsworthy that "The status quo is of all things most likely to depart; the millenium, of all things, least likely to arrive."

There was a marked change in the status quo when Cushing retired in 1932 and Christian in 1939, to be succeeded respectively by Elliott Cutler and Soma Weiss.

—THE CUTLER-WEISS ERA—

Hyperactivity dominated the scene in all directions. Gone was the more leisurely studious and contemplative life, to be replaced by a more vigorous investigation of the patients, their environment, the hospital in its various parts, and even the Medical School and the curriculum. Youth (relatively speaking) was having its fling. More emphasis was placed on the laboratories and on research activities. More scientific instruments were brought into the clinic, and now it became clear that the real way to understand the patient, his diseases and his reaction to them was to appraise all the factors in terms of pathologic physiology. Soma Weiss in his work on beri-beri heart disease and the

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vaso-vagal reflex exemplified the fashion of thought and approach in this era, as did Cutler with his attempts to strengthen the foundations of surgery by physiologic means. His chief emphasis was on careful meticulous technics, avoidance of blood loss, and gentleness with tissues. One of his favorite remarks during operation was, "Now remember, boys, this tissue is practically all water." He also abandoned Cushing's teaching and belief that a well-trained surgeon could operate equally well in any part of the body, and began the present assignment of special fields to certain individuals, which had been going on elsewhere for years.

—THE MILLIMOLER ERA—

The third rotation of the wheel of fashion in Medicine is too recent to be evaluated properly at present. It is still with us. We are in the midst of the metabolic—biochemical—electrolyte era, where the laboratories and the scientific instruments play a major role,—in many cases the dominant one. Simultaneously,

the urge to investigate and to do or take part in research has reached overwhelming proportions. Millions of dollars have gone into laboratories and expensive equipment and into the support of physicians or scientists working in the areas of research, but comparatively little into the support of teaching as such, or the care of the patient except in relation to research. Dean Berry reported to the Alumni yesterday that the Medical School is spending ten times as much money for routine affairs and teaching as it did 50 years ago, but one hundred times as much in research.

It is trite to repeat at this date that research won the late war. Nevertheless it is true. Never in history have the results of research activities played such a prominent part and in such a relatively short period of time, as those planned projects largely initiated after Pearl Harbor. The impact of all of this flood of money and abrupt change of direction upon our universities has been tremendous. In addition to the schools and colleges of scientific and technical makeup, like M.I.T., which absorbed most of the shock and produced the most important practical contributions. Medicine also participated. Our medical schools, hospitals, private and public quasi-medical organizations and even Big Business (often with an axe to grind) have gone overboard for Research. It is the magic name, the "Open Sesame" to success in 1954. But the tail is perhaps beginning to wag the dog, in that hospitals and sometimes attached but independent units are taking basic research away from the medical schools and universities. That may be good. Certainly "soft" money and "hard," or tenure, appointments do not mix. Actually, medical education itself has extended far beyond the medical school and its faculty into the hospitals' and the specialty boards' domains. They, not the schools, set up the rules, regulations and requirements in post-graduate or continued education,—but more of that later under "Curriculum." Before I leave

this particular fashion of intensive research, may I recall one of the skits from an Aesculapian play of days gone by. Soma Weiss was explaining his rapid rise to fame and revealing to his students the secret of his success as follows,—“Choose some rare screwball disease; investigate it from every possible angle; and then publish Hell out of it.” This third or present era in my short but enjoyable personal career, then, is characterized by a variegated superficial pattern, but a solid basic fashion, of biochemical investigation, metabolic investigation along lines and with instruments and methods never dreamed of by Christian and Cushing, and at the same time the curing of many of the incurables of that earlier era. The approach at present seems to be to cure all fevers with antibiotics; cut out all the neoplasms (sending at least one-half of the patient back to bed and the other half to the pathologist); cure all heart disease by surgery which digitalis has not cured; and if there are any patients left over, try all the metabolic tests in the manual, for it may be a new disease!

Dr. Burwell, in his 1952 Class Day address, noted that there were potent drugs ready and available for diseases not yet discovered. He omitted the observation, however, that many of these potent drugs may create their own diseases. The word for the group so produced is, I believe, the Iatrogenic diseases. If I should have any criticism at all of this present era, which of course I do not, it would be concerning the prevailing enthusiasm for therapy. Some of our younger men forget that many diseases are self-limited. It is more important in some of them to help and support the patient than it is to depth-bomb the invader and run the risk of serious damage to some of the other organs. Enthusiasm is wonderful but modern medicines are not only powerful, they may be dangerous. Overtreatment may do more harm than undertreatment. So whenever possible give Nature a chance before “Bombs away.”

Incidentally, Dr. Burwell, my classmate

John Stifel and I invented a new disease at Waikiki Beach, as follows:—

Description: Blisters on soles of feet.

Cause: Walking on hot sands or hotter sidewalks of ground-up lava.

Designation, if unilateral:—“lava foot”; if bilateral: “lava-lava foot.”

Cure: Go home. Prevention: stay home.

Differential diagnosis: chiefly from “volcano foot” which has eruptions on dorsum.

The other and equally striking change in the Medical Fashions of this present Atomic Decade is the tremendous surge of Psychiatry to a point where it is deemed by some to be of equal importance with Medicine and Surgery in the daily conduct of medical care of patients in a general hospital. This upsurge has occurred within the past ten years and has been supported by some of the large Foundations interested in medical affairs. The pendulum has swung far from the days of taxonomic exercises in institutions for the insane. It may have swung too far, or it may swing even more to the left, as my conservative friends would phrase it. Dealing only with shadows rather than substance, the Radiologist should have sympathetic bonds with the psychiatrist. The projection of the shadows, however, into strictly materialistic concepts breaks those bonds, and the radiological nucleus of the hospital remains neutral while the psychiatrist spins off into the outer orbits, only held in the atom by the nebulous filaments of dreams and wish fulfillments. The ultimate place of Psychiatry in the total care of the hospital population is still undetermined, as of this era.

If we were permitted to project the present tendencies into the future we might predict that the coming era—coming over the horizon already, with twice the speed of sound—will be the biophysical generation. Discoveries and investigative technics equal to those already contributed by biochemistry are in prospect. The Trace-elements laboratory just opened at the Brigham is an indication of the potentialities inherent in this area.

And, for a secret weapon in psychological warfare, may we announce the possibility of Supersonic Psychiatry, now being developed secretly, but progressing at twice the sound of speed!

—THE CURRICULUM—

Where does all this leave the problem of Fashions in Medical Education? Miss Murphy told me in our preliminary interview not to mess with the curriculum, as she was having enough trouble with it already. Actually she had previously assigned that problem of "Annual Suggestions of the Graduating Class for Revision, Improvement and Eventual Abolition of the Curriculum" to two of your classmates, Jones and Adler. Their report was used in the April number of the Harvard Medical Alumni Bulletin to fill up several pages which the editors could not sell to the surgeons. In it, in case you have forgotten, as usual, everything you heard or read more than a month ago, they report that Cutler had complained 30 years ago that teaching was too didactic. Then Adler and Jones pointed out that in 1922 there were 4965 catalogue hours required for graduation, but only 4374 in 1953, a difference of almost 600 hours or the equivalent of half a year. And yet I hear a rumor that some of you think you have been busy these past four years! Actually, and I speak from experience, you will, if you ever amount to anything, never again have so much free time and so much leisure as you have had these past four years. Life ahead of you is one continuous climb up the mountain. Some will climb higher than others, some will coast down into the valleys and remain there content. There will be many more examinations to face, many more experiments to make, further changes in your course perhaps, produced by environment or opportunity. Curriculum? I wouldn't worry about that, even though 60 per cent of you will in one way or another be attached to academic medicine. For my money the most important thing of all in graduating good physicians was done by the committee on admissions

five years ago, when they selected you young men and women of character, some ability, more promise, and, above all, an intense desire to study medicine. The will to learn is to me the most important asset a student can have. In second place of scholastic importance would be the members of your faculty, whose chief function is to give you the opportunity to learn and in some instances to furnish the stimulus or spark which will make some of you reach or exceed even your fondest hopes. So let's leave the curriculum to the proper committee, where they play the game of change every few years,—like a football game between the teams of the basic sciences and the clinicians, with the curriculum as the ball. When last seen, the psychiatrists had the ball in a huddle but they could not agree on what the signals meant!

Your medical faculty naturally abhors vacant spaces in the curriculum as nature abhors a vacuum. It was quite a struggle to get those free periods on Tuesdays and Thursdays, and it is still hard at times to prevent one department or another from commandeering that precious time by making extra demands on the students.

Dean Berry wants us all to think and speak of "Medical Education" rather than "Training." Actually I believe the terms are overlapping in many respects and that in some lights the "training" is the higher form of education. Just recently I received by a circuitous route through Ross Golden some of Lawrence Henderson's remarks concerning education and training. He first defined knowledge as being of two kinds,—one we get from familiarity, usage or experience, the other is obtained through symbols such as words or pictures. The latter is transmissible freely to others; it may even be stored away; it is called "book learning," and comes from without the individual. That would be education. The other (training) comes from within; it is learning through doing; the ability to use and apply the education acquired from without. In this sense, it is true, your four years have been devoted largely

to education. In your hospital work immediately ahead of you will be concentrated the training. Each of you should try to keep the attitude of a student toward your work as long as you live, for "There is so much to learn, and so little time."

In your recent oral examinations you have been found to be excellent in theory, perfect in information acquired, with an amazingly good scientific foundation. Only your application of what you know was weak. But we can graduate you without the slightest fear, knowing that you will learn how to apply all of this outside knowledge in your next few years in hospitals. That will still be only the second half of your preliminary education. You will still have to acquire the inside personal knowledge of proper relations with patients, their families, your fellow physicians and your public, in short, professional etiquette,—the essence of which is the Golden Rule.

We graduate you with an implied

warranty not only of professional competence but also of personal integrity and gentlemanly behavior. If you can refrain from telling people that you graduated from Harvard, then do so. If they can learn it from your exemplary conduct, so much the better. All of these Fashions in Medicine were but changes in emphasis within the total effort. You young men and young women will be setting the Fashions and planning the changes in the next generation.

In conclusion may I say without fear of successful contradiction, and with no fear of interruptions on points of order, that this class before me is indubitably the best class, the brightest, and the most promising one which Harvard Medical School will graduate this year. Furthermore, as four years ago I greeted you in Anatomy with "Good Morning, Children," may I now salute you, "Good Morning, my Fellow Physicians." And, as Tiny Tim said, "God bless us, every one."

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Harvard Medical Society Meetings

The May meeting of the Harvard Medical Society was devoted to the Undergraduate Assembly of the Harvard Medical School and held in the auditorium of the Jimmy Fund Building. Sumner Wood, Jr., IV year, was chairman of the Undergraduate Assembly Committee.

The Soma Weiss award of \$35.00 went to Bernard Landau, fourth year, for his paper on glycerol and pyruvate metabolism. Second prize of \$15.00 was won by Douglas Holyoke and Sumner Wood, Jr. for their paper on pituitary growth hormone.

Following are the abstracts of the papers:

The Effect of Pituitary Growth Hormone on Tumor Growth and Metastasis.

Douglas Holyoke and Sumner Wood, Jr., 4th year.

(This work was done at the New England Deaconess Hospital in the Cancer Research Institute under Dr. Shields Warren and Dr. Sheldon Somers.)

The influence of pituitary growth hormone on the number of successful takes, rate of growth, and frequency of spontaneous lung metastases of a sarcoma (T241) in mice (C₅₇B1/6) has been investigated.

1. Growth hormone, given 3 days before through to 10 days after the intravenous inoculation of a suspension of tumor cells, produced a six-fold increase in the number of lung tumors observed at autopsy at 16 days. The tumor diameters were also significantly larger in the treated than in the control group.

2. Mice were divided into four groups: (a) control, receiving vehicle, (b) pretreated with hormone before as well as after tumor inoculation, (c) pretreated only, and (d) treated with hormone only

after tumor inoculation. Those animals receiving hormone before tumor inoculation showed a five-fold increase in the number of lung tumors, while those receiving hormone after inoculation, although they received a total dose of twice the hormone given to the pretreated animals, showed the same number of tumors as the controls.

3. Growth hormone given to mice already bearing subcutaneous tumors 5 days, and continued daily, had no effect on either the rate of tumor growth or the appearance of spontaneous lung metastases.

4. TSH, the chief hormonal contaminant, did not alter the number of takes following intravenous tumor inoculation.

These data illustrate that growth hormone acted primarily on the host to favor tumor takes and early growth.

Effects of Pinealectomy on Ovary Weight in Immature Rats.

Julian I. Kitay, 4th year.

(From the Biological Research Laboratories, Harvard School of Dental Medicine, and the Laboratory for Clinical Physiology, McLean Hospital, under the direction of Dean Roy O. Greep and Dr. Mark D. Altshule, 1952-1954.)

Purpose: To investigate certain aspects of the function of the pineal gland and to determine a method of assay of pineal extract.

Summary: A successful technique of pinealectomy with a low mortality was developed. Four series of pinealectomized and sham-operated control rats were prepared. The last of these series consisted of 32 animals in each group as well as an additional group of 32 intact control rats. Ovary weights were determined at

autopsy at 50 days of age and unequivocal evidence of ovarian hypertrophy as a result of pinealectomy was obtained.

Pineal extract was administered for 14 days to 3 series of female rats. Ovary weights were determined at autopsy at various ages. The results indicate that pineal injection produces ovarian atrophy and inhibition of formation of corpora hemorrhagica in immature rats. A method of assay of pineal extract was suggested by the findings.

Metabolism of C-14—Labeled Glycerol and Pyruvate by Liver in Vitro.
Bernard Landau, 4th year.

(This work was done in the Department of Biological Chemistry under the supervision of Dr. A. B. Hastings. December 1953-April 1954.)

Purpose: To determine the source of the carbon atoms of glycogen and glucose formed by liver slices under a variety of conditions.

Findings: A method for the isolation of crystalline glucose from the glycogen of liver slices and their incubation medium has been developed. A scheme for small-scale degradation of glucose so that the specific activity of the carbon atoms can be determined has been devised. These methods have been applied to the incubation of liver slices of rats in the presence of pyruvate— 2-C^{14} and glycerol— 8-C^{14} as substrates under a variety of conditions.

The results thus far indicate that (a) glucose from the medium and from glycogen of liver slices have the same C^{14} distribution, (b) asymmetrical glucose is formed under varied conditions from pyruvate, (c) glycerol forms symmetrically labeled glucose under varied conditions and (d) the distribution of labeling is identical when pyruvate is substrate in both normal and diabetic animals.

The significance of these observations in the light of present concepts of carbohydrate metabolism were discussed.

Observations on the Nature of Muscle Cramps.

Forbes H. Norris, 3rd year.

(From the Departments of Physiology,

Harvard Medical School, and Neurosurgery, Massachusetts General Hospital. From 1951. Supported by Professor E. M. Landis. Part was done in collaboration with Dr. E. L. Gasteiger.)

Purpose: To study the localized, painful, sustained, involuntary contractions of skeletal muscles called muscle cramps.

Summary: Cramps occur in health and disease. In health, they are associated with exercise, sleep ("night cramps"), and pregnancy. In disease they are associated with low sodium states, benign myokymia, and (rarely) with motor system disease. Cramps occur frequently in so many healthy persons of all ages (e.g., 7-19% of young men) that their occurrence in peripheral vascular disease is probably coincidental. No relation to calcium metabolism has been proved.

Cramps are precipitated by shortening of the affected muscle, and relieved by stretching. Some normal persons can induce cramps by maximum contraction of certain muscles when these muscles are in shortened state. Eighteen per cent of 115 Harvard and Boston University students induced cramps by this maneuver before exercise, and 38% after exercise. Cramps were not observed on reproducing the maneuver in frog nerve-muscle preparations.

Action potentials were studied in human muscles during deliberately-induced cramps, using a new microelectrode technique of electromyography. Single motor units discharged in cramps more rapidly and in more prolonged bursts than in maximum voluntary effort. There was difference only in the number of discharging motor units between cramps and painless reflex contractions. Cramps were affected by reflex activity causing central excitation and inhibition, the simplest of which are shortening and lengthening, mentioned above. Cramps then appear to originate in central activity. The pain of cramps may be due to increased afferent impulses caused by the more intense motor activity; intramuscular stimulation from multiple sites simultaneously is painless.

This view that cramps originate in central excitation helps explain the occurrence of cramps in so many conditions of health and disease. It also helps the prophylactic effects of quinine, quinidine, and benadryl.

The Shift of the Acid-Base Titration Curve of Rhodopsin After Light Bleaching.

Charles H. Radding, 2nd year.

(This work was carried out at the Harvard Biological Laboratories under the supervision of Dr. George Wald during the summers of 1952 and 1953.)

Purpose: To study the changes in rhodopsin protein on exposure to light by means of the change in hydrogen ion potential of the solution.

Findings:

1. The titration curve of dialyzed rhodopsin was determined in the dark from pH 2 to 10.5 using a fresh aliquot for each pH determination.

2. Upon exposing the solutions to light the following changes in the titration curve were found: (a) above pH 7.5 the whole titration curve shifted to more acid pH; i.e. the rhodopsin in this range became a stronger acid. (b) below pH 6.5 the titration curve shifted to more alkaline pH; i.e. the rhodopsin in this range became a weaker acid.

3. The change in pH began immediately upon light exposure. The time course of change was different in the alkaline and acid ranges. In the acid range, the exponential change was rapid and approached completion in 15 to 20 minutes. In the alkaline range, the change was slower and it was not possible to fix with precision the end point of the pH change.

4. A preliminary regeneration experiment indicated that the change in protein at non-physiologic pH is not reversible. At physiologic pH it is known to be reversible. Thus the change in rhodopsin protein is a function of the pH at which light bleaching is carried out.

5. The strictest interpretation is that when rhodopsin is bleached in certain ranges of its titration curve the protein is altered so that new groups are exposed

and pK's shifted producing a change in the hydrogen ion potential of the solution.

Some Studies on the Effect of Parathyroidectomy and Dietary Calcium Restriction on the Calcium Metabolism of Lactation in the Rat.

Svein U. Toverud, 4th year.

(The studies were carried out during 1953 in the Biological Research Laboratories at Harvard School of Dental Medicine. These studies were sponsored by Dr. Paul L. Munson.)

The ultimate aim was to produce hypocalcification of the molar teeth of the rat for cariogenic studies. As calcification of the molar teeth of the rat takes place almost entirely during the normal suckling period, the immediate problem evolved around an attempt to decrease the milk calcium of the mother's milk by various means.

Summary: Dietary calcium restriction of two days' duration was found to lower the milk calcium concentration by 30 per cent in rats with intact parathyroids. No further reduction in milk calcium concentration was found after four and eight days on the same diet.

Parathyroidectomy, in spite of its consequent greater lowering of the serum calcium was found, if anything, to raise the milk calcium concentration of both calcium-depleted rats and rats receiving diets adequate in calcium.

Data on the weights of bone ash from the suckling rats did not conflict with the above findings.

It is suggested that the parathyroids may influence the calcium-concentrating mechanism of the mammary gland.

Histochemical and Pharmacological Studies on Myasthenia Gravis.

Sumner I. Zacks, 3rd year.

(These studies were done at the Department of Pathology, Massachusetts General Hospital in association with Dr. Benjamin Castleman and Dr. Richard Cohen. 1953-1954.)

Purpose: The purpose of the work is to investigate pathological, histochemical and pharmacological aspects of myasthenia gravis by histochemical staining of acetylcholinesterase in myasthenic end-plates

and assay of neuromuscular blocking activity of thymus extracts on the isolated frog sartorius preparation.

Observations: I. Staining of myasthenic end-plates by the usual methods has revealed no abnormality. It was found in the present study that acetylcholinesterase activity in end-plates from the extrinsic ocular muscles of a myasthenic patient who had been maintained on prostigmine was not different from acetylcholinesterase activity in control muscles. Thus, no evidence for increased or decreased acetylcholinesterase activity could be found and therefore two common theories concerning the basic defect in this disease could not be supported.

II. *Thymus extracts:* At this time, four thymus glands from myasthenic patients and 1 normal child's (age 6) gland have been extracted and tested on the frog sartorius preparation. The glands were obtained fresh at operation and placed in cold acetone according to the method of Wilson, Obrist, and Wilson (1953). The

acetone soluble (AS) and the acetone insoluble (AI) fractions were taken up in frog Ringer solution. The pH was adjusted to the pH of frog Ringer and the solutions were then added to the small-volume (2-4 ml.) muscle bath. Both AS and AI extracts from all the glands tested have shown blocking activity. Since no definite unit of activity has been chosen, it is convenient to report only ranges of activity compared to a known blocking agent, d-Tubocurarine chloride. With extracts containing 0.019-0.345 gm./ml., 3.5 to 100% inhibition has been obtained in 6 minutes corresponding to 0.303 micrograms d-Tubocurarine chloride. Of the nature of this material, it can only be said at present that the AI fraction is the more active, that the substance is quite heat stable, loses more activity on standing at room temperature, is dialysable and probably is not K+. Controls of normal muscle and lymphoid tissue (spleen; normal adult thymus—if available) will be reported.



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SIR HOWARD FLOREY, M.D., Editor. *Lectures on General Pathology*. Delivered at the Sir William Dunn School of Pathology, University of Oxford. W. B. Saunders Company. \$13.00. 733 pages. Illustrated.

FONTAINE S. HILL, M.D. *Practical Fluid Therapy in Pediatrics*. W. B. Saunders Company. \$6.00. 275 pages. Illustrated, 20 figures.

WALDO E. NELSON, M.D., Editor. *Textbook of Pediatrics*. With the collaboration of seventy contributors. W. B. Saunders Company. \$15.00. 1581 pages. Illustrated, 478 figures.

A.M.A. FUNDAMENTALS OF ANESTHESIA. Prepared under the editorial direction of the Consultant Committee for Revision of Fundamentals of Anesthesia, a publication of the Council on Pharmacy and Chemistry of the American Medical Association. New third edition. W. B. Saunders Company. \$6.00. 279 pages. Illustrated, 89 figures.

Book Reviews

FINE, JACOB: *The Bacterial Factor in Traumatic Shock*. Charles C. Thomas, Springfield, Ill., 1954.

This monograph by Dr. Fine presents the work of the surgical group at the Beth Israel Hospital. They have kept consistently at work on the shock problem during and following the war, and have developed an elegant method for producing standardized hemorrhagic shock. In more recent years, this group has become more and more interested in the bacteriological and toxic origin of irreversible shock, and they have a good deal of evidence for this view point. Although they neglect the previous work of others on analogous lines, this accumulated evidence indicates the importance of bacteria in producing irreversible shock in spite of late maintenance of an adequate blood volume. This group has done a vast amount of work with interesting results which are well summarized in this treatise.

JOSEPH C. AUB, M.D.

GREEN, ROBERT M., Translator: Galvani: *Commentary on Electricity*. Elizabeth Licht, Cambridge, Mass., 1953.

That a professor of obstetrics should bring

into this world the basic concept of animal electricity and at the same time stimulate his contemporary, Volta, to develop the first electric cell, should be more than a little surprising. However, it is not at all surprising to those who know him that Dr. Green, also an obstetrician by training, should be the first to bring into this world an English translation of Galvani's publication on animal electricity. Upon leaving the Harvard lecture hall for the rank of Emeritus Professor of Anatomy, Dr. Green has extended his service to the scientific world by employing his talent as a linguist and scholar to effect this translation. The combined contributions of Professors Galvani and Green result in a clear, stimulating account of the former's research. The inclusion in this translation of the comments of Aldini and the exchange of letters between Galvani and Carminati readily enables the reader to appreciate the relation of Galvani's researches to the scientific world of that day. Indeed, Carminati's letter leaves one with the desire to read more of Volta's researches and the ensuing controversy between Volta and Galvani.

To the student of electrophysiology who has heard Galvani's discovery variously credited to his wife's love of frog legs or to a capricious inland breeze, it is gratifying to read the original account; for as with most scientific concepts one finds that not until after many, many

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experiments was Galvani able to formulate his theory. While reviewing his experiments one is continually frustrated by the knowledge that this worthy investigator derives his important concept from evidence which obviously supports the theory of contact electricity later proposed by Volta. This in no way discredits Galvani but simply illustrates how readily we accept and assimilate ideas which were considered revolutionary at the time of their origin. One is engrossed by the many ridiculous and some amazingly correct conjectures found in this work. Galvani comes very close to describing the phenomenon known as "electrotonus" when he asks, concerning the function of conducting physiological fluids, "Will they be able to throw any light on the hitherto obscure cause and reason for the cooperation of nerves?" And then in great modesty he adds, "Would that wiser physiologists would investigate this sometime!" Any medical student who has been confounded by "electrotonus" knows that modern physiologists, perhaps not wiser, are devoting considerable attention to investigations of this subject. On the more practical side, Galvani's speculations as to the causes of epilepsy, convulsions, paralysis and apoplexy are of equal interest. The reader of modern day scientific literature, which

is characterized by its dull efficient style, will be aroused by Galvani's frequent expression of the wonder of science. Such warmth of expression recommends this work to scientist and layman alike.

E. L. GASTEIGER, Ph.D.

SIMMONS, FRED A.: *Diagnosis and Treatment of the Infertile Female*. Charles C. Thomas, Springfield, Ill., 1954. 73 pages.

This monograph is one of the well known American Lecture Series and covers a field of vital interest in a compact and attractively bound edition of 73 pages. The material is divided into 20 short chapters dealing separately with the salient points in history taking and physical examination, the commonly used tests of function and others not in common usage, the treatment of disorders of each of the reproductive organs and of the patient as a whole, and concludes with brief discussions of artificial insemination, adoption and the psychosomatic approach. A short bibliography and index are included. Obviously, a condensation of each of these chapters into two or three pages can cover each subject only in a broad way. One regrets that it was not possible for the author to draw on his own wide experience and give in greater detail the results of diagnostic tests and therapeutic regimens. As in any specialized field, not all of the stated or implied conclusions will find universal acceptance among those dealing with infertility problems. For those who lack a background in this work, the sentence structure is at times awkward enough to obscure the meaning—Thus the sentence "—and the (vaginal) smear is taken before examination with a lubricated gloved finger" may be interpreted in two ways, only one of which is acceptable. Again the statement that "—there are a few patients where x-ray treatment should be used for a benign process" is perplexing after three previous pages of arguments against use of x-ray. One suspects that the emphasis was intended to be different and that this sentence should have read "—there are *few* patients where x-ray treatment should be used—." A number of such ambiguities could have been advantageously smoothed out by rigorous editing. There is a lot of valuable information in this little book, particularly for those with prior knowledge of the subject matter who will not be misled by the occasionally confusing phraseology.

SOMERS H. STURGIS, M.D.

On opposite page, a verse review of
MOORE, MERRILL: *Verse-Diary of a Psychiatrist*. Contemporary Poetry, Baltimore, Md., 1954. 39 pages. \$3.00.

Harvard Medical Alumni Bulletin

*How difficult it is to write a book review
while sitting on Pandora's box—particularly
a book of poems or is it a box of poems. No matter!*

Along Shattuck Street soft in the shuttered twilight
I sought expression
Plucking at words with the sharp hooked point of
a question mark
"What shall I say of Merrill Moore
That's not been said, and frequently before?"
Moore—the very name bespeaks Cuchulain,
Brian Boru and Rory Calhoun,
Yet
By a peculiar twist
This gent's a psychiatrist.

I liked best
The undertipped Red Cap and the nocturnal
Zeppelin of the maiden lady.
Here, too,
The ripple of a laugh blending easily
With the long swell of tender understanding
In the sea of human experience
Unfathomed
even
by
him.

(And in his verse, for better or worse
Vividly dwell our particular hells
He can discern (it's his special concern)
Egg from ego and ibis from Id
Ah, prophet and poet and practical kid!)

"Work is a dragon," he writes (in Fairfield type on Linweave Text)
Pause, HMS, and see the monster exorcised.

What shall I say of his poems, I asked
Not so tortuous, perhaps, as Shapiro?
Nor so cute as Millay? Having something
In kind with that other Deutsch, Babette?
More important I thought, is this:
The book sits easily in the hand
After a long day,
Bound to the eye and the mind
With a common bond, pleasantly wrought.

Thus having said my say
I shall give grudging way
To more luminous prose
Even as (p. 33) the
Burnt-out Bulb at the Hotel in
Tadoussac.

J. P. M.

New Appointments

Two new appointments which increase the emphasis on the field of psychiatry at Harvard Medical School have recently been announced.

Dr. Eric Lindemann has been appointed Professor of Psychiatry in the Harvard Medical School and Psychiatrist-in-Chief at Massachusetts General Hospital. Dr. Raymond DeLacy Adams becomes Bulard Professor of Neuropathology in the Harvard Medical School and continues as Chief of the Neurological Service at the Massachusetts General Hospital.


Dr. Lindemann was first associated with Harvard Medical School in 1935 as a research fellow in neuropathology. He became an associate professor in psychiatry at the Medical School in 1951. His principle concern has been with the diag-

nosis and management of psychotic patients, and he played a signal role in the development of narcosynthesis. His psychological studies of patients with ulcerative colitis have contributed to an understanding of patients with an emotional disturbance and physical illness.

Dr. Adams joined the staff of the Medical School in 1938 and was named associate clinical professor of neurology and chief of the neurological service at the Massachusetts General Hospital in 1951. Dr. Adams' work has included studies of the vascular structure of the central nervous system from both a chemical and pathological viewpoint. He has been active in the investigation of neurological manifestations of disordered liver function.

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Award to Dean

On Thursday, June 17, 1954, at the ceremonies of commencement marking the conclusion of Harvard's 318th year, Doctor George Packer Berry, Dean of the Harvard Medical School, was awarded the honorary degree, Doctor of Science, by the

University. President Nathan Marsh Pusey cited Doctor Berry as follows: "Valued colleague, champion of the whole man in health and ill health, imaginative and vigorous leader in American medical education."

James Stevens Simmons

1890-1954

Brig. Gen. James Stevens Simmons, U. S. Army (Retired), Dean of the Harvard School of Public Health since 1946 and Chief of Preventive Medicine for the U. S. Army during World War II, died August 1, 1954. Death occurred suddenly in a Hartford, Connecticut hospital as Gen. and Mrs. Simmons were en route to Boston from Chapel Hill, North Carolina where they had been vacationing.

General Simmons was born June 7, 1890 in Newton, North Carolina, resided in Graham, North Carolina from 1894 to 1916 and served in the Medical Corps of the U. S. Army from 1916 to 1946. General Simmons became the first Dean of the Harvard School of Public Health when, in 1946, that institution became an independent unit of Harvard University. In this position, he was faced with the task of reorganizing an institution whose faculty and student body had been greatly depleted by World War II. Within two years under General Simmons's direction both the size of the faculty and the student body had been doubled, greatly enhancing the ability of the School to conduct research and to give instruction in all of the

public and preventive medicine specialties.

His outstanding service both to military and civilian health won many honors for General Simmons. In 1943 he was awarded the Sedgewick Memorial Medal of the American Public Health Association. The following year, the President of Cuba decorated him with the Carlos J. Finlay National Order of Merit and that same year he also received the United States of America Typhus Commission Medal for exceptionally meritorious service in connection with the control of typhus fever. In 1945 he received the Distinguished Service Medal. His work at the Harvard School of Public Health won new honors for General Simmons. In 1948 he was awarded the James D. Bruce Memorial Medal for outstanding achievement in preventive medicine. He delivered the Charles V. Chapin Oration at the 141st meeting of the Rhode Island Medical Society and there received the 1952 Chapin Medal for outstanding contributions in the field of public health. General Simmons was a member of the Association of Schools of Public Health and served three times as its president.

Necrology

1896

HARRY ALDRICH BARNES died at Pembroke, Massachusetts, July 18, 1954.

JOHN WHITE CUMMIN died at Boston, Massachusetts, July 16, 1954.

1898

EDMUND WRIGHT CLAP died at Norwich, Vermont, August 5, 1954.

1903

FRANCIS RAMON BURKE died at Quincy, Massachusetts, June 22, 1954.

HENRY TOLMAN died at Beverly, Massachusetts, August 5, 1954.

1904

HUGO BRUNO CARL RIEMER died at Norwood, Massachusetts, July 10, 1954.

1906

ROBERT JAMES KISSOCK died at Brookline, Massachusetts, June 18, 1954.

1908

RALPH WEARE TUTTLE died at Wolfeboro, New Hampshire, July 5, 1954.

1912

THOMAS FRANCIS GRADY died at Boston, Massachusetts, June 17, 1954.

1917

ALBERT WHITTIER FELLOWS died at Bangor, Maine, July 17, 1954.

1923

ROBERT WOODLEY STELLAR died at Redondo Beach, California, April 15, 1954.

1924

FRANCIS TENNERY HUNTER died at Chestnut Hill, Massachusetts, September 7, 1954.

1926

JOHN ANTHONY COYNE died at Brookline, Massachusetts, July 31, 1954.

1952

PETER KELEMEN died in Korea, June 24, 1954.

1954

KENNETH D. BORG died at Clinton, Massachusetts, August 27, 1954.

EDWARD C. HALEY died at Boston, Massachusetts, September 6, 1954.



PETER KELEMEN

On June 24, 1954, Peter Kelemen, '52, was killed in Korea.

Kelemen, who was born in Budapest in 1926, came to Harvard Medical School in 1950 to complete medical training he had started in Europe. Aside from his medical education, his main interests while at Harvard were music and tennis, which he coached for three summers at the Nantucket Yacht Club. He was an enthusiastic cellist in the Vanderbilt Hall String Quartet.

After serving his internship at the Henry Ford Hospital in Detroit, Kelemen entered the Army on July 1, 1953, and left almost immediately for Korea as Medical Officer in an infantry regiment.

In letters to his uncle, Kelemen's officers described his death as follows: "Your nephew was attempting to aid wounded members of a squad which had entered a mine field. While helping to carry a wounded man on a litter out of the mine field, he stepped on a mine, exploding it. He died instantly. His unflinching devotion to the service of the injured in the face of known danger marks him as a man of high courage and distinguished ideals."

